



"STRAYS" Painting by ROY LEE WARD

Breeds of Cattle

and then winding them into large balls. Several gunny-sacks of rag balls were required to make an ordinary size carpet. The carpet was woven in yard widths, and then fitted into the rooms and sewn together. The carpet was laid on a matting of fresh straw to make it soft for walking and more wearable. Fortunate indeed were those who could afford a "carpet stretcher" to help tighten the carpet as it was laid. The few in Heber who did have them were generous in sharing with all the community.

Food had been the most important crop for the early settlers, and as they established gardens and cultivated fields they also introduced stock raising into the valley. Because of the heavy snows that fell during the winters, there were numerous mountain streams and springs and an abundance of meadow-lands. Some wondered if the summer season would be long enough to make stock raising a sound economic possibility, but others reasoned that they could never know until they tried it, so several people brought small flocks of sheep and cattle into the valley in 1860.

President Brigham Young called John M. Murdoch, a shepherd from Scotland and a convert to the Church, to supervise a herd of sheep for the Church. However, by the time he arrived in Utah the sheep had been sold, so Mr. Murdoch came to Heber in 1860 and pioneered co-operative herding. Those who had sheep banded them together in the co-op herd and Mr. Murdoch took charge of them on range-lands in the summer and on southern ranches in the winter. The venture proved very successful, and families who before had been unable to care for sheep now found it possible to own a herd. As people developed their own individual herds, however, the co-op idea soon dwindled. Some of the first sheep owners were the Jacob brothers, Lindsay brothers, Murdocks, Clydes, Clotworthy, Coleman, Austin, Smith, Jessop Thomas and the Fitzgeralds.

The sheep industry grew substantially over the years, and at one time there were more milk fed lambs shipped out of Heber than from any other point in the United States.

The cattle industry grew also, supplying at first the needs of those in the valley and eventually providing beef and other meat products for shipment to Denver and many eastern cities. Some of the major owners of cattle included A. M. Murdock, J. W. Clyde, John Carroll, William Averett and sons, John Witt and sons, the Cardiles, Giles, Cummings and Abram Hatch and Sons.

DAIRYING

Dairying in the valley began with individuals who owned one or two cows and would sell their surplus milk or dairy products to neighbors. Later, creameries were established to collect the milk and distribute it on a large scale. Three such creameries have existed in Heber. One,



Grant Hellman

Hereford Cattle Graze in a Pasture.

CATTLE

CATTLE are among the most important farm animals. We eat the meat of cattle as roast beef, veal, hamburger, and hot dogs. We drink the milk of cattle, and use it to make butter, cheese, and ice cream. The hides of cattle provide leather for our shoes. Cattle also furnish materials for such useful items as medicines, soap, and glue. In some countries, cattle supply a main source of power by pulling plows, carts, and wagons. In some parts of the world, a man's wealth is judged by the number of cattle he owns.

All cattle have heavy bodies, long tails, and *cloven* (divided) hoofs. Cattle chew their food two separate times to digest it. After they chew and swallow the food, they bring it up from the stomach and chew it again. This once-swallowed food is called a *cud*.

Cattle graze lazily in green pastures and on the plains. Their mooing, or *lowing*, often breaks the silence of the countryside. *Beef cattle* are raised for their meat. *Dairy cattle* are raised for their milk. *Dual-purpose* cattle provide both meat and milk. But almost all cattle eventually are killed for meat.

People on every continent raise cattle. Cattle live in cold lands such as Iceland, and in hot countries such as India. Hindus in India believe cattle are holy animals. They do not kill cattle or eat their meat.

Cattle possess less intelligence than most other do-

mestic animals. People sometimes give them names. But cattle rarely learn to respond to their names as horses and dogs do.

In America, the word *cattle* usually means cows, bulls, steers, heifers, and calves. A *cow* is a female and a *bull* is a male. *Steers* are males whose reproductive organs have been removed by an operation. A young cow is called a *heifer* until she gives birth to a calf. A *calf* is a young cow or bull. A group of cattle is called a *herd*.

Beef cattle and dairy cattle that can be traced through all their ancestors to the original animals of a breed are called *purebred*. A *registered* animal is one whose family history has been recorded with the appropriate breed association. To be eligible for registration, cattle must be born of a *sire* (bull) and *dam* (cow) that are recorded in the association's register, or *herdbook*.

In the early 1970's, about 1½ million purebred cattle were registered with national associations. Not all purebred cattle are registered. Some farmers and ranchers have no interest in registering their cattle.

The Bodies of Cattle

Cattle have muscular backs and hindquarters. Most cattle reach a height of about 5 feet (1.5 meters). Cows weigh from about 900 to 2,000 pounds (410 to 910 kilograms). Bulls may weigh 2,000 pounds or more.

Most cattle have a coat of short hair that grows thicker and somewhat longer during the winter. A few breeds have long hair. The long, shaggy hair of Gallo-

politics. He considered principles more important than compromise. He became quaestor in 65 B.C. and helped reform the treasury. As a tribune, he supported Cicero against Catiline and opposed the First Triumvirate (see TRIUMVIRATE). In 54 B.C., Cato was made praetor.

When Pompey and Julius Caesar quarreled, Cato supported Pompey. When the news of Pompey's defeat at Pharsalus in 48 B.C. reached him, Cato fled to North Africa. There he received command of the defense of Utica. After the defeat of Pompey's forces at Thapsus in 46 B.C., Cato committed suicide by stabbing himself. He became a hero to those who idealized the dying Roman Republic.

CHESTER G. STARR

See also CAESAR, JULIUS; PRAETOR; STOIC PHILOSOPHY; TRIBUNE.

CAT'S-CLAW. See ACACIA.

CAT'S-EYE is a prized gem stone that is an opalescent variety of chrysoberyl, a beryllium-aluminum compound. When cut in a certain way, this gem resembles a cat's eye. It has a silky luster and shows a greenish, reddish, and yellowish play of colors. The true cat's-eye is found in Sri Lanka. See also GEM (color picture).

CATSKILL MOUNTAINS form a chain of low mountains along the western shore of the Hudson River in New York. The southern end of the Catskills lies about 100 miles (160 kilometers) from New York City. The chain is about 50 miles (80 kilometers) long and 30 miles (48 kilometers) wide. The highest peaks include Slide Mountain (4,204 feet, or 1,281 meters) and Hunter Mountain (4,025 feet, or 1,227 meters).

The Catskill Mountains once formed part of a plateau that was carved out by rivers thousands of years ago. Trees, woodland plants, and flowers cover the slopes of the Catskills. This is one of the most beautiful natural regions in New York. Catskill State Park covers 596,120 acres (241,241 hectares) in the region.

Many summer resorts and sanitariums are in the Catskills. The Schoharie and Ashokan Reservoirs are artificial bodies of water that have been dug in the Catskills region. The Catskill Aqueduct carries water from the Ashokan Reservoir to New York City. Thunder Mountain in the Catskills is the *Dunderberg* of Washington Irving's famous story, "Rip Van Winkle," published in 1819.

WILLIAM E. YOUNG

CATSUP. See CATCHUP.

CATT, CARRIE CHAPMAN (1859-1947), was an American leader in the campaign for woman suffrage. She served as president of the National American Woman Suffrage Association from 1900 to 1904, and from 1915 to 1920, when Amendment 19 to the United States Constitution was passed, giving women the right to vote.

Mrs. Catt began her suffrage work as an organizer of clubs in 1887. She became one of the suffrage movement's most effective lecturers and organizers. Her work extended to Canada and Europe. From 1904 to 1923, she served as president of the International Woman Suffrage

CATTELL, JAMES MCKEEN

Alliance. In 1920, she founded the National League of Women Voters (now called the League of Women Voters) to teach women an understanding of public affairs so they could vote intelligently. In 1925, she founded the National Committee on the Cause and Cure of War. This became the Women's Action Committee for Victory and a Lasting Peace.

Mrs. Catt was born in Ripon, Wis., and attended Iowa State College. She taught school and became the first woman superintendent of schools in Mason City, Iowa. She married Leo Chapman, a newspaper editor, who died in 1886. She married George William Catt, an engineer, in 1890 in Seattle, Wash.

LOUIS FILLER

See also LEAGUE OF WOMEN VOTERS; WOMAN SUFFRAGE.

CATTAIL is a wild plant that grows in swamps and marshes throughout the United States and southern Canada. In some places, cattails cover large areas with their waving green leaves. The larger cattails are about 6 feet (1.8 meters) high, and have long, broad leaves. The smaller ones have narrow leaves. Cattail flowers enlarge and become the long brown spikes sometimes used for winter decorations. On the Pacific Coast, cattails are known as *tule-reeds*.

The roots of cattails contain starch, and are eaten by the Cossacks of Russia. The English eat them under the name of *Cossack asparagus*. Cattails provide a silky down used to dress wounds and for upholstering. During World War I this down was used in the manufacture of artificial silk and served as a substitute for cotton. In some places in Europe and India, people use the highly inflammable pollen of cattails for tinder.

Cattails are often used for decorations in homes.

J. Horace McFarland

Scientific Classification. Cattails belong to the cattail family, *Typhaceae*. The larger cattail is genus *Typha*, species *T. latifolia*; the smaller, *T. angustifolia*. FRANK THONE

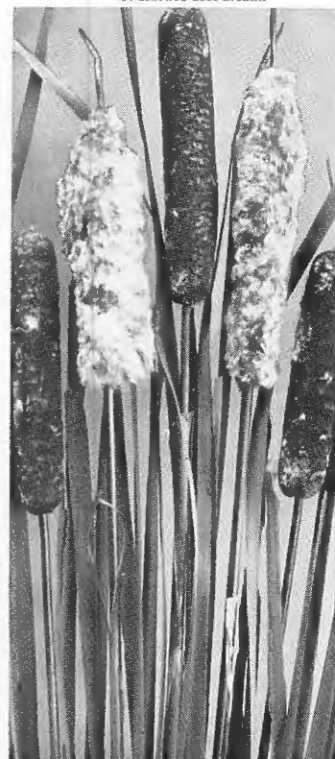
See also BULRUSH.

CATTALO. See BUFFALO.

CATTELL, kuh TELL, JAMES MCKEEN (1860-1944), an American scientist, professor, editor, and publisher, pioneered in the field of experimental psychology. He taught psychology at the University of Pennsylvania, Cambridge University, and Columbia University. He served as editor of several scientific publications, including *Science*, *The Scientific Monthly*, and *The American Naturalist*. He also was editor and publisher of *American Men of Science*. Cattell was born in Easton, Pa.

CLAUDE A. EGGERTSEN

Carrie Chapman Catt
Clinedinst



way cattle enables them to survive the extremely cold weather in Scotland, where the breed developed and where most of them are raised. Cattle also have a long tail, which they use to shoo away insects.

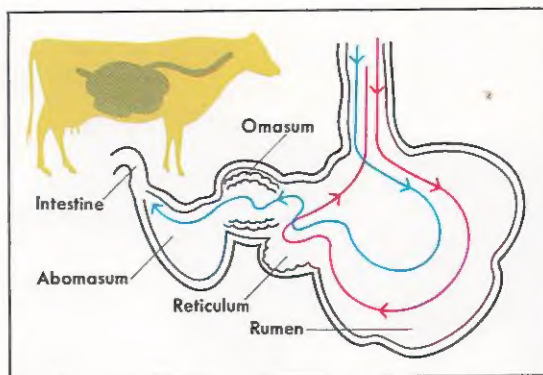
Teeth. Adult cattle have 32 teeth—8 in the front of the lower jaw and 12 each in the back of the upper and lower jaws. A cow cannot bite off grass because it does not have cutting teeth in the front of its upper jaw. It must tear the grass by moving its head. Cattle chew their cud with their *molars* (back teeth).

Horns. The horns of cattle are hollow and have no branches, as do those of some other horned animals such as deer. Cattle born without horns are called *polled* cattle. Cattle owners have increased the number of polled animals through selective breeding. They *dehorn* (remove the horns of) most horned cattle to keep them from injuring other cattle or people. The horns are removed with chemicals or a hot iron. In most cases, dehorning occurs when a calf is less than 3 weeks old.

Stomach. Cattle have a stomach with four compartments. This kind of stomach enables them to bring swallowed food back into their mouth to be chewed and swallowed again. Animals with such stomachs are called *ruminants*. The four compartments are the *rumen*, the *reticulum*, the *omasum*, and the *abomasum*.

When cattle eat, they first chew their food only enough to swallow it. The food goes down the *esophagus* (food pipe) into the rumen. The rumen and the reticulum form a large storage area. In that area, the food is mixed and softened. At the same time, microorganisms that grow in the rumen break down complex carbohydrates into simple carbohydrates. Such simple carbohydrates as sugars and starches provide the major source of energy for the animal. The microorganisms also build protein and many B-complex vitamins.

After the solid food has been mixed and softened, stomach muscles send it back up into the animal's



WORLD BOOK diagram by Steven Liska

A Cow's Stomach has four compartments. Food first enters the two sections shown by the red line. The cow then rechews the food as a cud, which follows the path shown by the blue line. In the drawing, the animal's stomach has been stretched out of its actual shape to show how food travels through it.

mouth. The animal rechews this cud and swallows it. The swallowed cud goes back to the rumen and reticulum, where it undergoes further chemical breakdown. The food and fluids then move down into the omasum, where much of the water is absorbed. The food then enters the abomasum. The walls of the abomasum produce digestive juices. These juices further digest the food. The abomasum is called the *true stomach*, because it functions in much the same way as the stomach of creatures that are not ruminants. From the stomach, the food goes to the intestine, where digestion is completed.

Udder. Cows have a baggy organ called an *udder*, which holds their milk. The udder hangs from the cow's

Grant Hellman



A Milking Parlor on a dairy farm has sanitary equipment that milks cows, such as the Holsteins shown at the left. The milk is stored in a refrigerated tank until it is delivered to a processing plant.

CATTLE



Aberdeen-Angus

American Angus Association



Brahman

American Brahman Breeders Association



Charolais

Grant Heilman

body a little in front of the hind legs. The udder has four sections that hold milk. When a cow is milked by hand, pressure causes the milk to squirt out of the udder through large nipples called *teats*. Some farmers still milk their cows by hand. But large dairy farms use electrically operated milking machines. Milking machines use suction to draw the milk from the cow's udder into a container (see **MILKING MACHINE**). Beef cows, which produce milk only for their calves, have smaller udders than dairy cows.

Beef Cattle

Most beef calves graze on large areas of open grassland that are unsuitable for growing crops. This method of feeding enables ranchers to raise stock without using large numbers of workers and expensive feeds and equipment. Beef calves have been bred to produce meat under such ranching conditions.

Beef cattle have also been bred to mature and fatten earlier than dairy cattle and to produce less milk than dairy cattle. However, steers and heifers from dairy breeds also provide excellent beef and supply much of the beef eaten in the United States.

Meat from calves that are less than 3 months old is called *veal*. Meat from older animals is called *beef*. Butchers classify beef into various *cuts*, such as steaks and roasts. People also eat the brains, heart, kidneys, liver, *sweetbread* (pancreas and thymus), tongue, and *tripe* (stomach lining) of cattle.

The chief breeds of beef cattle in the United States are the *Aberdeen-Angus*, *Brahman*, *Charolais*, *Hereford*, *Santa Gertrudis*, and *Shorthorn*.

Aberdeen-Angus cattle, often called simply *Angus*, are polled animals with black coats. These cattle mature and fatten early. Their fat tends to *marble* (mix with lean meat), a desirable quality in beef. Many cattle raisers consider the Angus the typical beef animal. But others believe the breed is not large enough. A number of breeders crossbreed the Angus with certain larger breeds to produce larger offspring.

Breeders developed the Angus in the Highlands of Northern Scotland. The breed was brought to America in 1873. Today, cattle owners throughout the nation raise Angus cattle.

The *Red Angus*, a separate breed, was developed from red calves born to Aberdeen-Angus cattle. Except for their red color, these Angus resemble Aberdeen-Angus.

Brahman cattle thrive in the hot, humid climate of the southern United States, especially in states bordering the Gulf of Mexico. Brahman cattle have short hair and well-developed sweat glands that enable them to withstand heat and humidity. The Brahman has a fleshy hump over its shoulders. Most of these cattle are light gray or nearly black, although a few are red. American breeders developed the Brahman by crossing various kinds of *Zebu*, the humped cattle of India, which were imported into the United States from 1854 to 1926.

Charolais cattle are a very large, white breed that originated in France. Commercial cattle producers seek Charolais for crossbreeding because of their great size, their heavy muscular system, and the rapid growth of Charolais calves. No other breed has gained such widespread popularity in the United States in so short a time. In 1936, the first Charolais were brought

to the United States from Mexico. In the mid-1960's, a number of them were imported from Canada.

Hereford cattle have red bodies and white faces. They often are called *whitefaces*. Herefords also have white patches on their chests, flanks, lower legs, and on the *switches*, or tips, of their tails. They have short necks and broad heads.

Herefords can be raised on the grasslands of the western United States until they are ready for market. But their meat is tastier if they are fattened on corn and other grains. Herefords are especially popular as "baby beef." Packing houses buy baby beef when the animals are 8 to 18 months old and weigh from 600 to 1,100 pounds (270 to 499 kilograms).

The Hereford breed was developed in the county of Hereford in England. The breed first was brought to the United States when Henry Clay imported Herefords in 1817 for his Kentucky farm. But they were not brought in on a large scale until 1850.

Polled Herefords are a strain, or variety, of Herefords that are born without horns. They are not a separate breed. Warren Gammon of Des Moines, Iowa, developed purebred polled Herefords in 1901 by crossbreeding Herefords that had been born without horns.

The Santa Gertrudis. In the 1920's and 1930's, the King Ranch at Kingsville, Tex., crossed Shorthorns and Brahmans to develop the Santa Gertrudis. The cattle are about five-eighths Shorthorn and three-eighths Brahman. Large numbers of them live in the humid areas of the South and Southwest. The calves grow rapidly and mature into large cattle. Santa Gertrudis have been exported to Africa and several Latin-American countries.

Shorthorn cattle include three strains. The term *Shorthorn* alone applies to cattle raised for meat. *Milking Shorthorns* are raised for both beef and milk. *Polled Shorthorns* are raised for beef. Shorthorns may be all white, all red, or *roan* (yellow-red), or combinations of white and red.

Shorthorn cattle were brought to America from England in 1783. The Shorthorn became popular with the early American pioneers. Settlers crossed the breed with the Longhorn, which was the most plentiful breed at that time. Shorthorns can be found in most parts of the United States and in many parts of Canada.

Other Beef Cattle. The *Limousin* and the *Simmental* are two European breeds popular for crossbreeding in the United States. The Limousin is a large, well-muscled French breed brought to the United States in 1969. The Simmental is found in many parts of Europe, where it is raised for milk and beef and used for *draft* (pulling loads). This large breed came from Switzerland and was brought to the United States in 1967.

Other imported breeds popular among U.S. cattle owners include the *Devon*, from England; the *Galloway* and the *Highland*, both from Scotland; and the *Maine-Anjou*, from France. Breeders have crossed cattle from major breeds to create such new American breeds as the *Beefmaster*, the *Brangus*, and the *Chorbray*. The *Droughtmaster*, a cross between a Brahman and a Shorthorn, is a popular breed in Australia.

Dairy Cattle

The five most important breeds of milk cows in the United States are the *Holstein-Friesian*, *Jersey*, *Guernsey*,

CATTLE



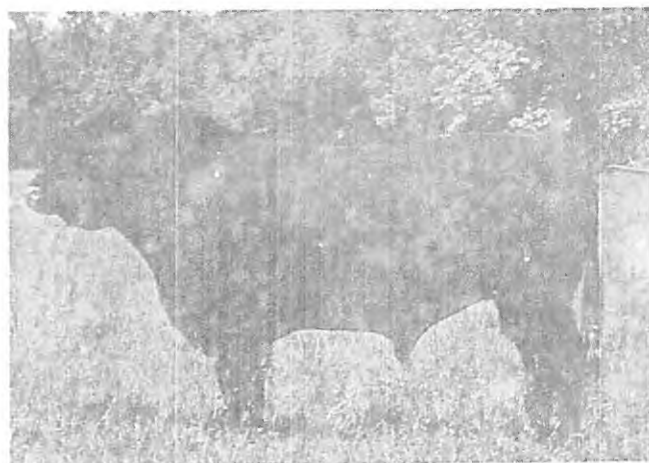
Danny Weaver, Agri-Graphic Services

Hereford



Santa Gertrudis Breeders International

Santa Gertrudis



American Shorthorn Association

Shorthorn

to the United States from Mexico. In the mid-1960's, a number of them were imported from Canada.

Hereford cattle have red bodies and white faces. They often are called *whitefaces*. Herefords also have white patches on their chests, flanks, lower legs, and on the *switches*, or tips, of their tails. They have short necks and broad heads.

Herefords can be raised on the grasslands of the western United States until they are ready for market. But their meat is tastier if they are fattened on corn and other grains. Herefords are especially popular as "baby beef." Packing houses buy baby beef when the animals are 8 to 18 months old and weigh from 600 to 1,100 pounds (270 to 499 kilograms).

The Hereford breed was developed in the county of Hereford in England. The breed first was brought to the United States when Henry Clay imported Herefords in 1817 for his Kentucky farm. But they were not brought in on a large scale until 1850.

Polled Herefords are a strain, or variety, of Herefords that are born without horns. They are not a separate breed. Warren Gannon of Des Moines, Iowa, developed purebred polled Herefords in 1901 by crossbreeding Herefords that had been born without horns.

The Santa Gertrudis. In the 1920's and 1930's, the King Ranch at Kingsville, Tex., crossed Shorthorns and Brahmans to develop the Santa Gertrudis. The cattle are about five-eighths Shorthorn and three-eighths Brahman. Large numbers of them live in the humid areas of the South and Southwest. The calves grow rapidly and mature into large cattle. Santa Gertrudis have been exported to Africa and several Latin-American countries.

Shorthorn cattle include three strains. The term *Shorthorn* alone applies to cattle raised for meat. *Milking Shorthorns* are raised for both beef and milk. *Polled Shorthorns* are raised for beef. Shorthorns may be all white, all red, or *roan* (yellow-red), or combinations of white and red.

Shorthorn cattle were brought to America from England in 1783. The Shorthorn became popular with the early American pioneers. Settlers crossed the breed with the Longhorn, which was the most plentiful breed at that time. Shorthorns can be found in most parts of the United States and in many parts of Canada.

Other Beef Cattle. The *Limousin* and the *Simmental* are two European breeds popular for crossbreeding in the United States. The Limousin is a large, well-muscled French breed brought to the United States in 1969. The Simmental is found in many parts of Europe, where it is raised for milk and beef and used for draft (pulling loads). This large breed came from Switzerland and was brought to the United States in 1967.

Other imported breeds popular among U.S. cattle owners include the *Devon*, from England; the *Galloway* and the *Highland*, both from Scotland; and the *Maine-Anjou*, from France. Breeders have crossed cattle from major breeds to create such new American breeds as the *Beefmaster*, the *Brangus*, and the *Charbray*. The *Droughtmaster*, a cross between a Brahman and a Shorthorn, is a popular breed in Australia.

Dairy Cattle

The five most important breeds of milk cows in the United States are the *Holstein-Friesian*, *Jersey*, *Guernsey*,

CATTLE



Henry Weaver, Agri-Graphic Services

Hereford



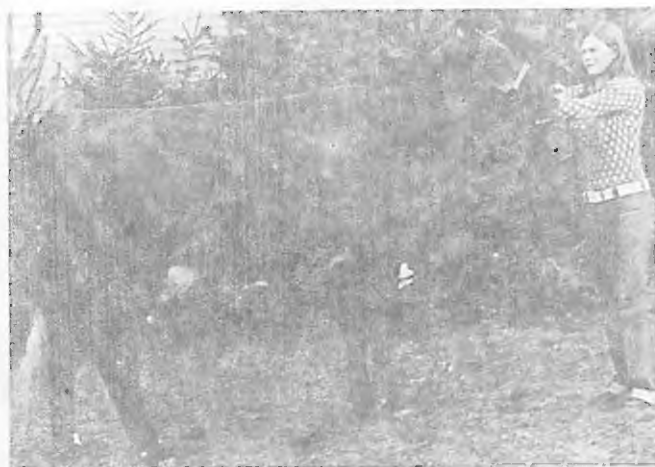
Santa Gertrudis Breeders International

Santa Gertrudis



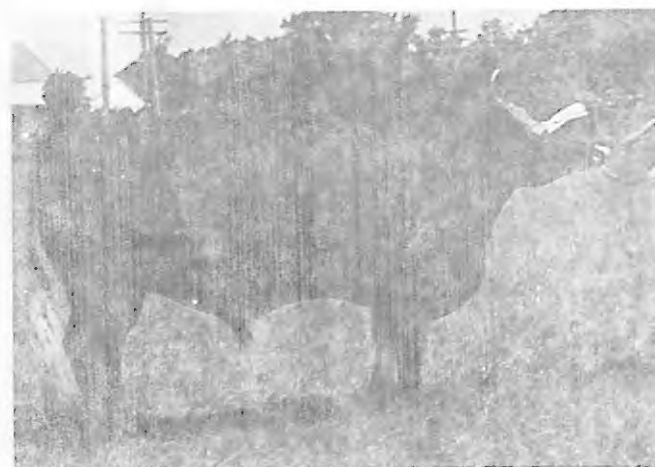
American Shorthorn Association

Shorthorn



Danny Weaver, Agri-Graphic Services

Milking Shorthorn



Danny Weaver, Agri-Graphic Services

Red Poll

Polls. Red Polls are smaller than Shorthorns, and are less numerous than Milking Shorthorns.

The breed originated in the counties of Norfolk and Suffolk in England. Red Polls were brought to the United States in 1873. Most of the Red Polls in the United States are raised on farms in the Middle West. The Red Poll Cattle Club of America has its headquarters located in Lincoln, Nebr.

Breeding and Care of Cattle

Breeding. Cattle breeders select and mate the best types of cattle for a special purpose, such as producing large quantities of milk or high-grade beef. Then they mate the best of the offspring until, after several generations, the cattle possess the desired qualities. In this way, beef cattle have been bred to mature earlier. They thus can be sold at a greater profit than they could if they had to be fattened over a longer time. Selective breeding has increased milk output and the percentage of butterfat.

Heifers usually are mated when they are between 15 and 27 months old. A cow carries her calf in her body for nine months before it is born. Cows usually have one calf every year. Sometimes twins are born. Bulls may start breeding at the age of 1 year, but they are most active between 2 and 6 years of age.

A cow cannot produce milk unless it has given birth to a calf. Such a cow is known as a "fresh" cow. After the birth of the calf, the cow usually gives milk for about 10 months. A cow that does not give milk is called a "dry cow."

Feeding. Feeding methods have greatly improved the production of both meat and milk. Cattle are hearty eaters. Here is a recommended daily diet for fattening a 2-year-old beef steer: 25 pounds (11 kilograms) of corn or sorghum silage, 4 pounds (1.8 kilograms) of red clover hay, 14 pounds (6 kilograms) of corn or ground grain sorghum, and 1½ pounds (0.57 kilogram) of linseed meal or cottonseed meal.

The fattening diet of younger cattle contains more grain and less roughage, or coarse feed such as hay.

Six Main Breeds of Beef Cattle

Breed	Aberdeen-Angus	Brahman	Charolais	Hereford	Santa Gertrudis	Shorthorn
Color	Black	Light gray to nearly black	White to straw-colored	Red and white	Red	Roan, red, or white; or red and white
Place of origin	Scotland	United States	France	England	United States	England
Rank in size	5	3	1	4	2	6
Year brought into United States	1873	—	1936	1817	—	1783
Rank in number registered in United States	2	6	3	1	4	5
National registry association formed	1883	1924	1957	1881	1951	1882



Grant Heilman

In a Feed Lot, cattle eat carefully selected feed that makes them gain weight much faster than they would by grazing. Feed lots are an efficient means of fattening cattle before they are sent to a packing house.

Cattle feeders watch the appetites of their cattle closely. They often add "blackstrap" molasses, a low-grade sugar solution, to encourage cattle to eat more. The best feeders use the latest scientific methods to make their cattle gain weight rapidly at the lowest cost.

Certain chemicals may be added to cattle feed to make cattle eat more and fatten more quickly. Antibiotics are also added to feed to increase gains in weight.

The amount of milk and butterfat produced each year by a cow can be increased by a proper diet. The average dairy cow eats 3 pounds of silage and 1 pound of hay a day for every 100 pounds of its body weight. Dairy cows usually receive 1 pound of grain or other concentrated feed for every 4 to 6 pounds of milk. Both dairy and beef cattle eat large amounts of *forage*, or rough feed such as clover and alfalfa. They eat huge amounts of grass every year and turn it into meat and milk for us to eat and drink.

Many cattle have been poisoned by eating certain kinds of plants found in dry regions of the western United States. Weeds that may poison cattle include locoweed, death camas, prince's-plume, and some lupines and larkspurs. Cattle owners sometimes destroy these plants with chemicals. See LOCOWEED.

Diseases sometimes attack cattle. The most serious cattle diseases include *anthrax*, *blackleg*, *bloat*, *brucellosis*, *foot-and-mouth disease*, and *mastitis*. All except bloat and mastitis are contagious.

Anthrax is caused by a germ that is usually picked up from the soil. It generally enters an animal's body through the mouth. Anthrax causes a high fever and often stops the flow of milk. It may be fatal to cattle. See ANTHRAX.

Blackleg is one of the deadliest diseases. It usually strikes animals between 6 and 18 months of age. It causes lameness, convulsions, rapid swelling, and high fever. Blackleg, carried by a germ in the soil, usually causes death within 36 hours.

Bloat is a condition in which gas swells the paunch,

Five Main Breeds of Dairy Cattle

Breed	Ayrshire	Brown Swiss	Guernsey	Holstein-Friesian	Jersey
Color	Red and white spotted	Brownish-gray	Orange, fawn, and white spotted	Black and white spotted	Light to dark grayish-fawn
Place of origin	Scotland	Switzerland	Isle of Guernsey	The Netherlands	Isle of Jersey
Rank in size	3	2	4	1	5
Average per cent butterfat of milk	4.0	4.0	4.7	3.7	5
Average annual yield of milk	6,500 lbs. (2,950 kg)	7,000 lbs. (3,200 kg)	5,750 lbs. (2,608 kg)	8,500 lbs. (3,860 kg)	5,250 lbs. (2,381 kg)
Rank in number registered in United States	4	5	2	1	3
National registry association formed	1875	1880	1877	1885	1868

ditions give the biggest profit. A steer is normally ready for slaughter by the time it is 18 months old, but it may be 2 years old or older. Cattle reach full growth in two to three years. But many cattle are fat enough before they reach *maturity* (full growth). Such cattle, called *finished* cattle, may be as young as 8 months, and may weigh only 600 pounds (270 kilograms).

Some farmers in the East and Middle West breed and raise their own cattle. But most farmers find it more profitable to buy feeder cattle and use their land for growing feeds to fatten the stock.

Grass-Fed Cattle. Cattle owners sometimes feed their stock on grass for one or two years, and sell the animals as "grass fattened." Some grass-fattened cattle also receive grain feed for several weeks before they are fat enough to send to market. Farmers in southern coastal areas raise many calves that are sold for early slaughter or for grazing on richer pastures. Their land is not suitable for raising feeds on which to fatten cattle.

Dairy Cows. Most dairy cows spend their lives on one farm. Heifers from cows that have produced little milk are sent to market to be slaughtered for veal when only a few weeks old. It is probable that such calves, like their mothers, would be poor milk producers. Most male calves also are sent to market. Dairy farmers are careful to save the female calves of the best cows for herd replacements. When a cow fails to produce milk economically, it is sent to a livestock market and sold for slaughter. Such dairy cows produce much of our low-grade beef.

Show Cattle. Cattle owners exhibit prize animals at county fairs, state fairs, and livestock expositions. A champion dairy cow has a wide chest, strong head, and well-developed udder. A blue-ribbon beef animal has a



Grant Hellman

Longhorn Cattle, such as the steer shown above, were an important breed in the American West until the early 1900's.

solid, compact body, with short legs and broad head. Exhibitors such as Four-H Club members start developing show cattle as soon as the calves are born. The animals are carefully fed, exercised, and groomed. Their coats are trimmed and their horns are polished.

History

Early Cattle. Cattle belong to the genus *Bos*. Modern breeds descended from two species: *Bos indicus*, the humped cattle of Asia; and *Bos taurus*, the wild cattle of Europe. Most U.S. breeds descended from European cattle, especially the subspecies *B. taurus primigenius* and *B. taurus longifrons*. *B. taurus primigenius* were large, long-horned cattle. They were also called *auroch* (giant ox). *B. taurus longifrons*, also called the *celtic ox*, were smaller and had short horns.

People have raised cattle for thousands of years. Prehistoric drawings of cattle have been found on the walls of the Lascaux Cave in France and the Altamira Cave in Spain. Pictures carved in ancient Egyptian tombs show oxen pulling plows and treading grain.

Cattle raisers once followed their herds from land to land as the cattle searched for grass to eat. Later, some of these herders and their families settled in one place. They fed their cattle grain in addition to grass.

Beginning of Breeding. The first cattle were used as work animals as well as for producing milk and beef. The same kind of animal performed all three tasks. Gradually, people began to breed cattle either as beef animals or for producing milk. Robert Bakewell, a farmer who lived in Leicestershire, England, first used modern livestock breeding methods. He began improving his cattle during the late 1700's. He used a breed of cattle called *Longhorns* (different from Texas Longhorns), and tried to develop cattle that would give larger amounts of meat.

American Cattle. Some historians believe that cattle were first brought to the Americas by Norwegian Vikings in the early 1000's. In 1493, Christopher Columbus brought long-horned cattle from Spain to Santo Domingo (now part of the West Indies) on his second voy-

Leading Cattle Countries

Number of beef and dairy cattle in 1975

India	                                	180,269,000*
United States	                                	131,826,000
Russia	                                	109,122,000
Brazil	                                	92,480,000
China	                                	63,224,000*
Argentina	                                	58,000,000
Australia	                                	33,066,000
Mexico	                                	28,071,000
Bangladesh	                                	27,418,000*
France	                                	24,700,000

*Estimate.

Sources: U.S. Department of Agriculture; FAO.

CATTLE

age to America. Descendants of these cattle later were taken into Mexico and eventually into Texas. They were ancestors of the famous Texas Longhorns.

Governor Edward Winslow of Plymouth Colony brought cattle to New England in 1624. Cattle raising spread westward as the pioneers moved across the continent. They used oxen to pull their wagons and plows.

Railroads helped cattle ranchers on the plains by providing transportation to the eastern markets. Refrigerated railroad cars made it possible to ship meat products safely over long distances. Breeders' organizations encouraged the improvement of beef and dairy cattle. Livestock shows spurred interest in breeding prizewinning cattle.

In the West, ranchers came to realize that the Texas Longhorn grew slower and was less profitable than such breeds as the Hereford and Aberdeen-Angus. The Longhorn produced little beef in proportion to its bulk. By the 1920's, the Texas Longhorn had nearly disappeared from the western ranges.

Growth of Herds. In 1900, there were about 59,739,000 cattle in the United States. The United States Department of Agriculture in the mid-1970's estimated the number of cattle in the country at about 128 million. It valued them at about \$24½ billion.

United States cattle owners have worked to improve breeds and to increase beef and milk production. By the early 1950's, Americans were eating more beef than pork. The average person in the United States eats about 95 pounds (43 kilograms) of beef and drinks about 115 quarts (109 liters) of milk every year.

The World Supply. There are about 1.2 billion beef and dairy cattle in the world. Asia raises three-tenths of the world's cattle. Africa and North and South America also have large numbers of cattle.

India has the most cattle of any country. But India's cattle are undernourished and have little work value. There is also little demand for meat in India because the cow is considered sacred. Other countries with large numbers of cattle include the United States, Russia, Brazil, and China. The United States, Russia, and Brazil have the most beef cattle. Russia, the United States, and France have the most dairy cattle.

Scientific Classification. Domestic cattle belong to the genus *Bos* of the bovid family, Bovidae. H. M. BRIGGS

Related Articles in WORLD BOOK include:

KINDS OF CATTLE

Aurochs	Carabao	Ox
Bison	Kouprey	Water Buffalo
Buffalo	Musk Ox	Yak

DISEASES AND PESTS

Anthrax	Lumpy Jaw
Bang's Disease	Mange
Botfly	Rinderpest
Cattle Tick	Tsetse Fly
Face Fly	Warble Fly
Foot-and-Mouth Disease	

INDUSTRY

Agriculture	Dairying	Meat Packing
Breeding	Livestock	Ranching

PRODUCTS

Beef	Butter	Casein
------	--------	--------

Cheese
Gelatin

Leather
Milk

Tallow
Veal

OTHER RELATED ARTICLES

Channel Islands	Ruminant
DES	Ungulate
Farm and Farming (pictures)	Western Frontier Life (The Cattle Boom; Life in the Country; picture: Texas Longhorn Cattle)
Horn Pasture	

Outline

- I. The Bodies of Cattle
 - A. Teeth
 - B. Horns
 - C. Stomach
 - D. Udder
- II. Beef Cattle
 - A. Aberdeen-Angus
 - B. Brahman
 - C. Charolais
 - D. Hereford
 - E. The Santa Gertrudis
 - F. Shorthorn
 - G. Other Beef Cattle
- III. Dairy Cattle
 - A. Holstein-Friesian
 - B. Jersey
 - C. Guernsey
 - D. Ayrshire
 - E. Brown Swiss
 - F. Other Dairy Cattle
- IV. Dual-Purpose Cattle
 - A. Milking Shorthorns
 - B. Red Polls
- V. Breeding and Care of Cattle
 - A. Breeding
 - B. Feeding
 - C. Diseases
 - D. Dwarf Cattle
- VI. Raising and Marketing Cattle
 - A. Feeder Cattle
 - B. Grass-Fed Cattle
 - C. Dairy Cows
 - D. Show Cattle
- VII. History

Questions

- What are polled cattle?
 What do cattle owners strive for in breeding beef cattle? In breeding dairy cattle?
 Why are Charolais cattle popular for crossbreeding?
 What was the original meaning of the word *cattle*?
 About how many beef and dairy cattle are there in the world?
 How can Holsteins be identified? How do they rank in size among the dairy breeds? In milk production?
 Why had Texas Longhorns nearly disappeared in the United States by the 1920's?
 What are purebred cattle? Are they always registered?
 How long do cows usually produce milk? What usually happens to a cow that no longer gives milk?
 What country has the most cattle?

CATTLE BRAND. See RANCHING (picture: Famous Ranch Brands of the Old West).

CATTLE DRIVE. See COWBOY (The Cattle Drive); WESTERN FRONTIER LIFE (The Cattle Boom; Life in the Country).

CATTLE EGRET. See Egret.

CATTLE GRUB. See WARBLE FLY.

CATTLE PLAGUE. See RINDERPEST.

CATTLE RANCH. See RANCHING.

CATTLE TICK, or TEXAS FEVER TICK, carries Texas fever, a disease of cattle. The tick is round and chestnut brown in color. It carries a one-celled animal that causes the disease. The female tick leaves the one-celled animals in the cow's body when it sucks the cow's blood.

Texas fever is an infectious disease. The one-celled animals multiply in the cattle's blood and destroy the red blood corpuscles. The disease became



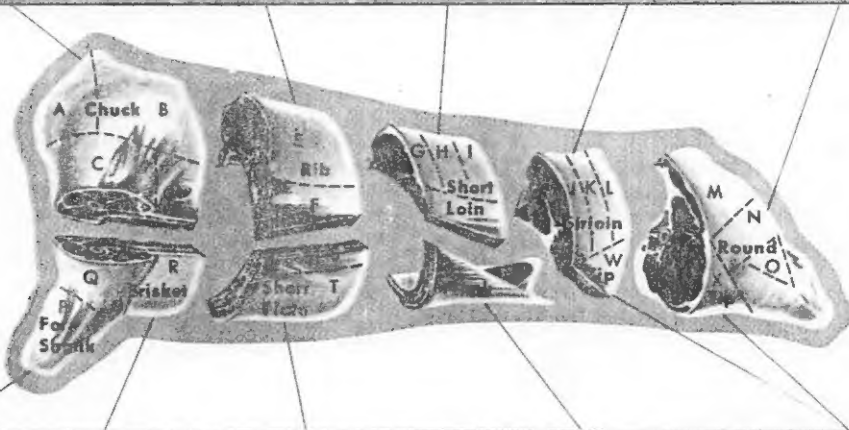
USDA
The Cattle Tick causes Texas fever when it bites cows and sucks their blood.

Beef Cuts and How to Cook Them

Meat packers slice a beef carcass into wholesale cuts, which are sold to supermarkets and then divided into smaller retail cuts. This chart shows the various cuts of beef and tells how to cook them.

National Live Stock and Meat Board (WORLD BOOK diagram by James Teasdale)

Chuck Braise, cook in liquid.	Rib Roast, broil, panbroil, panfry.	Short Loin Roast, broil, panbroil, panfry.	Sirloin Roast, broil, panbroil, panfry.	Round Braise, cook in liquid.
Beef for stew (A)	Rib roast (E)	Top loin steak (G, H, I)	Pin bone sirloin steak (J)	Rolled rump* (M)
Boneless chuck eye roast* (B)	Rib steak (E)	Boneless top loin steak (G, H, I)	Flat bone sirloin steak (K)	Top round steak* (N)
Boneless shoulder pot roast or steak (C)	Boneless rib steak (E)	T-bone steak (H)	Wedge bone sirloin steak (L)	Eye of the round (N)
Chuck short ribs (C, D)	Rib eye roast (E)	Tenderloin (H, I)	Boneless sirloin steak (J, K, L)	Bottom round roast or steak* (N)
Cross rib pot roast (D)	Rib eye steak (E)	Porterhouse steak (I)	Ground beef** (N)	Heel of round (O)



Fore Shank Braise, cook in liquid.	Brisket Braise, cook in liquid.	Short Plate Braise, cook in liquid.	Flank Braise, cook in liquid.	Tip Braise.
Shank cross cuts (P)	Fresh brisket (R)	Short ribs (S)	Ground beef** (U)	Tip steak* (W, X)
Beef for stew (Q)	Corned brisket (R)	Skirt steak rolls* (S, T)	Flank steak* (V)	Tip roast* (W, X)
		Beef for stew (S, T)	Beef patties** (U)	Tip kabobs* (W, X)
		Ground beef** (S, T)	Flank steak rolls* (V)	

**May be roasted, broiled, panbroiled, or panfried.

*May be roasted, broiled, panbroiled, or panfried if cut comes from high-quality beef.